

## New Fort Myers Plant Creating Biodiesel out of Restaurants' used Cooking Oil



FORT MYERS — It's a dirty job.

But Christian Colarusso is happy to have it. He's one of several recent [Florida Gulf Coast University](#) graduates to land a job at a new state-of-the-art plant that's pumping out biodiesel in Fort Myers.

He operates the processors and equipment that turn used cooking oil into eco-friendly fuel that can run just about any diesel engine. His job is all about grease.

After graduating from FGCU in 2010 with a bachelor's degree in environmental engineering, Colarusso, 26, worked for a local waste water treatment plant. But he didn't find it challenging.

Now he's challenged, with the new biodiesel plant revving up a few weeks ago. The multimillion-dollar plant is owned and operated by FL Biofuels LLC, a start-up that now has more than a dozen employees.

"The conversion from waste cooking oil to biodiesel is from a chemistry perspective fairly simple," Colarusso said. "But to try to do it on a bigger scale is really tough."

Just beyond the plant's front office there's a long wall filled with calculations for the many "recipes" that have been developed to convert the dirty cooking oil to biodiesel. There are so many recipes they've spilled out onto a second wall in the training room.

It took about four years to get the plant open, primarily because of all the regulatory requirements. The company recently got its final permit from the U.S. Environmental Protection Agency.

The plant, including an office building, stretches more than 25,000 square feet and sits on 2.5 acres off Edison Avenue, a few blocks from the Lee County courthouse. It's the only plant of its kind in Florida operating at a state farmers' market, designed to help market local produce. One day, the owners hope to make fuel from energy crops, too, but the crops haven't taken off in Southwest Florida.

It cost nearly \$10 million to get the plant up and running, with most of that money coming from the pockets of its three co-owners of FL Biofuels: Roy Benton II, his son Roy Benton III, and Dave Lageschulte, who co-owns about 20 Hooters and other restaurants in Florida.

The Bentons started looking into renewable energy after getting out of the commercial construction business in 2004.

"We're just one real small piece of a larger puzzle," said Roy Benton II, 62. "We just really need to get off fossil fuels, especially when we have to purchase it from people who really don't like us."

The fuel made at the plant is 100 percent biodiesel, but can be blended to make lower percentages, such as B5, B10 and B20. It's sold wholesale and the company doesn't have its own fueling stations.

One of the company's first buyers might be Lee County government, which has a contract to buy up to 500,000 gallons of the biodiesel to help run its vehicles over the next three years. Benton said he's been in talks with a large fuel distributor in the Southeast U.S. that could end up buying "all the fuel his company can make."

The plant can produce 4.5 million gallons of biodiesel a year, but it's running at half of its capacity, making two batches of fuel a day. One batch is about 3,100 gallons, so that's more than 6,000 gallons a day.

"We're still getting our feet wet," Benton said.

While it's not at full capacity, the plant still operates around the clock, with shift workers on duty 24 hours a day, seven days a week.

Cooking oil — called the feedstock — is trucked to the plant, coming from restaurants in Southwest Florida and elsewhere in the state, which sell it for a profit.

"What was once waste 10 years ago is now extremely valuable," Colarusso said.

The conversion from waste to biodiesel involves taking the moisture and sediment out of the cooking oil and removing the glycerin, which is sold to other companies to make everything from soap to medicine.

"There's really no such thing as waste here," Colarusso said.

There are only two other biodiesel plants like the one in Fort Myers in North America — one in San Diego and the other in Canada. Both of those are about half the size, Benton said.

The biofuels market continues to grow. Pike Research, a research firm based in Colorado, predicts the global market for biofuels will grow to a value of \$185.3 billion by 2021, up from \$82.7 billion in 2011. By 2021, the company forecasts that biofuel production will reach 65.7 billion gallons a year.

There are plenty of other biofuel refineries across the country, including a few in Florida, but they use different processing technology. The Fort Myers plant has a Swedish system that's used all over Europe to make biodiesel. Its processing system has a few modifications, including an ion exchanger built by Benton III, which removes magnesium and sulfur from the oil, making the fuel purer.



Ray Judah

There's a maintenance room filled with hundreds of spare parts, some of them hard to find, to keep the plant operating.

The conversion to fuel takes about 12 hours. There are many tests along the way.

Lauren Barraco, another recent graduate of Florida Gulf Coast University in Estero, is a chemist for FL Biofuels. She regularly checks oil and fuel samples for water, methanol content and other attributes. She has a degree in chemistry and worked for a bank for seven months until she landed a job at FL Biofuels. During the conversion, there are half a dozen tanks to monitor inside the plant. There are more tanks sitting outside, with some used for storage.

The biofuel-making process uses very little water and the methanol used to break down the cooking oil is captured and can be used again, said Mindy Collier, quality control manager at FL Biofuels. More than 90 percent of the oil is converted to fuel. Murky brown oil becomes a honey-colored fuel you can see through.

The cooking oil comes from a broker, who gets it from restaurants as far south as Miami to north of Orlando.

"A lot of it comes from South Florida," said broker Wayne Whittaker, president and owner of IQC in Sarasota. "Here's the thing about used cooking oil. It's found where there's lots of people. You don't have a lot of fast food restaurants in the middle of Alligator Alley, so you have to go where there are lots of people and that is Miami, Orlando and Tampa."

He collects the oil from various suppliers, who pick it up by the truckload at chain and mom-and-pop eateries. Chinese and taco restaurants are particularly popular pick-up points.

Outgoing Lee Commissioner Ray Judah is thrilled to see the plant finally open.

"Grease and waste vegetable oil create maintenance problems in our sewer system and more importantly it's a wonderful alternative to fossil fuel that can be used in our fleet of buses, at LeeTran," he said. "Eventually, it could be used in school buses where the children would be far greater protected from the toxic fumes of diesel. The only complaint the kids might have is the school bus smells like french fries."

The plant is well-located because it's so close to the rail lines, opening up the opportunity to ship its fuel by train, Judah said.

He expects big things from FL Biofuels.

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Lee County helped Florida Biofuels qualify for a \$500,000 U.S. Department of Energy grant from stimulus funds for the project, through the American Recovery and Reinvestment Act.

"As long as the government makes it a requirement that biodiesel be blended with diesel fuels, these guys will have a market and they have the potential for growing," Whittaker said.